



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,277	01/04/2002	Frank D. Husson JR.	SOLAR1120-3	1245

30542 7590 10/21/2003

FOLEY & LARDNER

P.O. BOX 80278

SAN DIEGO, CA 92138-0278

EXAMINER

PRICE, CARL D

ART UNIT

PAPER NUMBER

3749

DATE MAILED: 10/21/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/039,277

Applicant(s)

HUSSON, FRANK D.

Examiner

CARL D. PRICE

Art Unit

3749

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09-09-2003 (amendment and RCE filed).
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6, 7, 9, 10, 12-15, 17-22, 24-26, 28-31, 33, 34, 37-39, 43, 44 and 47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 7, 9, 10, 12-15, 17-22, 24-26, 28-31, 33, 34, 37-39, 43, 44 and 47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9, 12. 6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on has been entered.

### Claims

In the amendment filed on 08-04-2003:

Claims 4,5,8,11,16,23,27,32,35,36,40-42,45,46 and 48-56 were cancelled by applicant.

Claims 1-3,6,7,9,10,12-15,17-22,24-26,28-31,33,34,37-39,43-47 are pending and remain under examination.

Applicant has elected to defer action on the matter of conflicting claims between this application and co-pending U.S Patent Application No. 09/788,336.

### Response to Arguments

Applicant's arguments with respect to claims 1-3,6,7,9,10,12-15,17-22,24-26,28-31,33,34,37-39,43,44 and 47 have been considered but are moot in view of the new ground(s) of rejection.

Applicant has requested clarification regarding the status of the rejection of claims 1,3-7,9,12,13,16,43,46 and 48 under 35 USC 102 (b) made by the examiner in the office action mailed 11/12/2002, paper no. 4. Since, in the Final Rejection mailed 05-06-2003, all claims were rejected only under 35 USC 103 it should be clear to applicant that the prior rejection of claims 1,3-7,9,12,13,16,43,46 and 48 under 35 USC 102 (b) was no longer being maintained by the examiner.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that the prior art references of Kircus, Billingham, Luboschik et al (DE 28 51 793), Homsey et al and Posnansky fail to disclose and/or, either alone or in combination, the teach the invention as now set forth in the amended claims. Applicant argues that the prior art of record does not show or teach a solar water heater of the type set forth in the claims including at least one energy converting structure and an insulation each being formed integral with the water-tight re-sealable container.

Applicant's suggestion that the device of Luboschik "is not capable of achieving temperatures necessary to accomplish pasteurization in a reasonable amount of time" and "the materials used by Luboschik are not compatible with production of potable water" is noted. Applicant however provides not factual support for such conclusions. In addition, it is noted that applicant's claim 1, for example, is not limited to the "a reasonable amount of time" argued by

Art Unit: 3749

applicant. Therefore, applicant's argument is not commensurate with the scope of the claim invention. Indeed, it is noted that applicant's own disclosure, and claims, rely on no particular material for performing the invention, other than materials generally known as "flexible polymeric materials". It is noted however that the flexible materials used in Luboschik et al (e.g. – PVC, PE, etc.) are indeed known as polymeric materials and would therefore be capable of performing the invention as broadly set forth in applicant's claims. Indeed, Billingham also relies on flexible polymeric materials (e.g. – polyethylene) not unlike those disclosed by applicant and Luboschik et al. Billingham clearly states, on page 11, lines 13-26, the "In my prototype as above, this temperature stabilized at 75° C, well within the serviceable range of the materials selected; should the pump fail or be inadvertently switched off or if there be a power failure the mat will not melt ...". This not only supports the examiner's conclusion that the polymeric material of Luboschik et al would inherently operate at applicant's claimed 60° C temperature, but also provides a clear teaching that it would have been obvious to a person having ordinary skill in the art to use such polymeric materials for their known ability to withstand temperatures as high a 75° C, as taught by Billingham. The examiner can not therefore agree with applicant's conclusion that Luboschik et al alone or as modified by Billingham would not or could not operate at the temperature set forth in applicant's claims.

In response to applicant's argument based upon the age of the references, contentions that the reference patents are old are not impressive absent a showing that the art tried and failed to solve the same problem notwithstanding its presumed knowledge of the references. See *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977). Applicant has provided no such showing.

The examiner therefore sees no merit applicant's comment that "if combination of these references was actually obvious, why has no one else done so in more than 15 years since these references were first published".

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that the examiner has combined an excessive number of references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

Art Unit: 3749

USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, applicant's attention is directed to the examiners stated reasons for combining the various prior art teaching set forth in the rejection of the claims herein below, and in the previous office actions.

As stated in the previous Office action, Applicant's attention is directed to Billingham, (see page 8, lines 18-21 and page 9, lines 15-19, which state that "... preferably lower insulating member 12, upper insulating member 14 and support member 16 are formed as a unitary assembly" and "The unitary assembly of members 12, 14, 16 other than at the locations of the releasable connection, can conveniently be joined as by heat welding the respective edges together, and the materials for members 12, 14, 16 will be selected with this requirement in mind."). It is therefore clear Billingham anticipates the various elements of the collector (i.e. - upper and lower insulating layers (12,14) and support layer (16)) to be integrally formed, since it is well known that heat welding causes the bonded materials to melt together and thereby become an integral part of one another. Thus, regarding the claim limitation that the insulation structure is an integral part of the container, it is the examiner position that the heat welded unitary assembly of Billingham anticipates applicant's invention as broadly claimed.

While Luboschik et al is silent (in the English language abstract) as to the manner in which the various elements, or layers, are formed into the unitary member illustrated, the prior art reference of Kircus clearly teaches that it is known, and would have been obvious at the time of the invention, to integrally form insulating layers, such as in Billingham, as well as energy converting layers in a unitary integral heat sealed fashion to form a solar energy collecting unit.

**Newly Cited Prior Art**

The flowing rejection of the claims includes newly cited prior art references now relied on to address the limitations of applicant's invention as now set forth in the amended claims. For example, the prior art reference of Ryder (U.S. Patent No. 3939968) (of record) is now relied on to teach that it is known to secure a reusable transparent sterilization/ pasteurizer indicator (37,40), via a bracket (14), to a removable container sealing cap (11). The temperature history being determined by visual inspection of a eutectic mixture located within a transparent container. See portions of Ryder reproduced herein below.

Hall (U.S. Patent No. – 4520793)(of record) is now relied on to teach forming a portable flexible polymeric bonded layered solar collector water heaters by bonding a first clear flexible side wall to a second flexible sidewall, including a spout and cap (34,36), made of three layers (e.g.- an inner dark, outer reflective and middle flexible insulating layer) and wherein the device is “quickly heated to temperatures in excess of 100° F”. when placed in the sun. See portions of Hall reproduced herein below.

Burkhardt (U.S. Patent No. - 4557251)(newly cited) is now relied on to teach that it is well known to make use of energy collected from solar radiation to, in portable devices, raise the temperature of water sufficient to bring about pasteurization/sterilization of the water for **“the purpose of sterilizing water where a supply of pure water is not available.”**. Burkhardt furthermore discloses a useful relationship between water depth (about 4 cm), water temperature (boiling point), rate of heating of the water, available solar radiation (an average summer's day)



Art Unit: 3749

and time (about 8 hours) necessary to achieve the stated purpose. Burkhardt therefore clearly teaches the person having ordinary skill in the art that a suitable time necessary to bring about sterilization/pasteurization of water in a portable solar water processing method or apparatus is dependant on numerous design concerns such as those listed herein above. In addition, Burkhardt clearly teaches the person having ordinary skill in the art techniques necessary for permitting solar radiation to be directed into the water body, and for reducing heat loss from the body of water. Burkhardt includes, for example, a sealed air space between the transparent cover (21) and an upper wall (28) of the water container, applying a layer of foam insulation about the side and rear portions of water body to reduce heat loss, selecting materials having properties suitable for the high temperature operation of the apparatus, forming the water container of a light-transparent material while coating the upper/inner surface of the insulated backing layer with a black light-absorptive coating, etc. The overall arrangement of elements of the solar water heater/sterilizer of Burkhardt being not unlike that claimed by applicant. See portions of Burkhardt reproduced herein below.

**Drawings are Objected to under 37 CFR 1.83(a).**

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the 1) pump-action pressurized sprayer, and/or a water-well pump (claim 24), 2) a sport-cap or filter-containing attachment (claim 25), 3) a thermometer, a liquid crystal sheet indicator, or a water pasteurization indicator (WAPI) (claim 28), 4) two or more different temperature indicators (claim 29), 5) one or more

Art Unit: 3749

particulate, anti-microbial, or charcoal filters (claim 30), 6) a filter associated with the opening (claim 31), 7) one or more pleated structures to provide for expansion (claim 33), and 8) a reflective panel and/or solar cooker placed external to said container (claim 34), respectively, must be shown or the feature(s) canceled from the claim(s). **No new matter should be entered.**

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1, 2,3, 6, 7, 9,10,12,13,17-22, 24,25,26,29-31,33,34,37-39, 43, 47:**

**Rejected 35 U.S.C. 103(a)**

Claims 1, 2,3, 6, 7, 9,10,12,13,17-22, 24,25,26,29-31,33,34,37-39, 43 and 47, are rejected under 35 U.S.C. 103(a) as being unpatentable over Luboschik et al (DE 28 51 793) in view of Ryder (U.S. Patent No. 3939968), Burkhardt (U.S. Patent No. 4557251), Hall (U.S. Patent No. 4520793) and Kircus (of record).

Luboschik et al discloses the invention substantially as set forth in the claims with possible exception to 1) to integrally forming insulating layers as well as energy converting

Art Unit: 3749

layers in a unitary integral heat sealed fashion to form a solar energy collecting unit and 2) the water heater being capable of maintaining water temperatures of at least 60<sup>0</sup> C, water temperature sensor and the lower insulating support member (16) is made reflective to redirect solar radiation and radiant heat energy back on the collector/absorber, 3) securing a reusable transparent sterilization/ pasteurizer temperature history indicator, via a bracket, to a removable container sealing cap wherein the temperature history determined by visual inspection of a eutectic mixture located within a transparent container, 4) the use foam insulation, 5) and a rear wall mounted filling cap and spout.

Luboschik et al shows and discloses a solar heating mat for heating water present in a solar energy converting/absorbing container (1). The re-sealable water heater container/absorber (1) is made from flexible black polymer material (e.g. - PVC) and has includes transparent air filled/inflatable upper and lower insulation structures (9,11) having re-sealable filling valves (10). Luboschik et al also includes a re-sealable container filler opening (2a), a flexible valved (3a) spout/sprayer (3,3a) and a support (5,6) for holding the heating mat to permit gravity flow of water therefrom. Luboschik et al further includes a reusable thermometer\_(7) for indicating the temperature of water in the solar heater.

Ryder (U.S. Patent No. 3939968) (of record) teaches, form the same portable flexible solar energy water heating field of endeavor as Luboschik et al, that it is known to secure a reusable transparent sterilization/ pasteurizer indicator (37,40), via a bracket (14), to a removable

Art Unit: 3749

container sealing cap (11). The temperature history being determined by visual inspection of a eutectic mixture located within a transparent container.

Ryder discloses:

“... When the temperature of the liquid within the container reaches the sterilization temperature desired, the eutectic material 40 will melt and flow to the bottom of the vessel. After the lens holder 10 has cooled and been opened for removal of the contact lenses a simple visual inspection of the vessel will enable the user to determine readily whether or not the sterilization temperature has been reached, this being indicated by the presence of the eutectic material at the bottom of the vessel.” ...

... “When it is again desired to use the lens holder to sterilize lenses, the vessel 30 is rotated about the axis of the pins 31 and 32 to again place the eutectic material at the top of the vessel. A subsequent sterilization is then performed and the eutectic material will again melt and flow to the bottom of the vessel. Should a malfunction of the heating apparatus occur the eutectic material will not melt. Therefore, the eutectic material will remain in the upper portion of the vessel. This then will indicate to the user that a proper sterilization temperature has not been reached.”

Hall (U.S. Patent No. – 4520793)(of record) teaches, form the same portable flexible solar energy water heating field of endeavor as Luboschik et al, forming portable flexible polymeric bonded layered solar collector water heater by bonding a first clear flexible side wall to a second flexible sidewall, including a spout and cap (34,36) on the bottom insulated layer, and made of three layers (e.g.- an inner dark, outer reflective and middle flexible insulating layer) and wherein the device is “quickly heated to temperatures in excess of 100° F”., when placed in the sun.

Hall discloses:

“The present invention is directed to a heater that meets these requirements. The heater is foldable, lightweight, and flexible so that it can easily be used by backpackers and the like. The heater is a container that comprises two opposed sidewalls that are preferably peripherally bonded to each other to form a bag.

Art Unit: 3749

The first sidewall is formed of clear, flexible plastic. The second side wall comprises three layers, (i) an inner layer of dark, flexible plastic; (ii) an outer layer of reflective flexible plastic; and (iii) a middle layer of flexible insulating foam sandwiched between the inner and outer layers.

The heater also includes an inlet and outlet for placing water into and removing water from the container.

By placing the heater in the sun with the clear wall facing the sun, water in the heater is quickly heated to temperatures in excess of 100.degree. F. Because of the insulating foam and the outer layer of reflective flexible plastic, faster heating to higher temperatures is possible with the heater of the present invention than is possible with the Sun Shower heater, particularly at low ambient temperatures."

... "The front wall 14 is formed of clear, flexible plastic.

The rear wall 16 comprises three layers, an inner layer 22, an outer layer 24, and a middle layer 26 sandwiched between the inner layer 22 and the outer layer 24.

The inner layer 22 is formed of a dark flexible plastic. The outer layer 24 is formed of a reflective, flexible plastic. The middle layer 26 is made of a flexible, insulating foam.

Preferably, the same base plastic is used for the front wall 14, inner layer 22, and outer layer 24 so that the front and rear walls can be easily secured together. Suitable plastics include polyethylene and polyvinylchloride, with polyvinylchloride being preferred.

Preferably the front wall 14 is at least 10 mils thick and preferably the inner layer 22 and the outer layer 24 of the rear wall 16 are each at last 5 mils thick so that the shower 10 can hold large volumes of water. Preferably the front wall 14 is less than 30 mils thick and the inner layer 22 and outer layer 24 of the rear wall 16 are each less than about 20 mils thick, because, as the thickness of the walls of the container 10 increases, it becomes heavier, which is disadvantageous for backpackers, and the container 10 becomes less flexible. Further, as the front wall 10 becomes thicker, less solar energy reaches the water 12 in the shower 10.

The inner layer 22 of the rear wall 16 can be formed of polyvinylchloride that has been pigmented black. The outer layer 24 of the rear wall 16 can be formed of polyvinylchloride that has been pigmented with a silver, metallic colored pigment."

Burkhardt teaches, from the same portable flexible solar energy water heating field of endeavor as Luboschik et al, that it is well known to make use of energy collected from solar radiation to, in portable devices, raise the temperature of water sufficient to bring about pasteurization/sterilization of the water for **"the purpose of sterilizing water where a supply of pure water is not available."** Burkhardt furthermore discloses a useful relationship between

Art Unit: 3749

water depth (about 4 cm), water temperature (boiling point), rate of heating of the water, available solar radiation (an average summer's day) and time (about 8 hours) necessary to achieve the stated purpose. Burkhardt therefore clearly teaches the person having ordinary skill in the art that a suitable time necessary to bring about sterilization/pasteurization of water in a portable solar water processing method or apparatus is dependant on numerous design concerns such as those listed herein above. In addition, Burkhardt clearly teaches the person having ordinary skill in the art techniques necessary for permitting solar radiation to be directed into the water body, and for reducing heat loss from the body of water. Burkhardt includes, for example, a sealed air space between the transparent cover (21) and an upper wall (28) of the water container, applying a layer of foam insulation about the side and rear portions of water body to reduce heat loss, selecting materials having properties suitable for the high temperature operation of the apparatus, forming the water container of a light-transparent material while coating the upper/inner surface of the insulated backing layer with a black light-absorptive coating, etc. The overall arrangement of elements of the solar water heater/sterilizer of Burkhardt being not unlike that claimed by applicant. The container of Burkhardt is both flexible and expansive in that "In use, under pressure of boiling water within the flask 13, the back wall 29 bulges downwardly into contact with the adjacent surface 50 of the insulation material 19 ...". See portions of Burkhardt reproduced herein below.

Burkhardt discloses:

... "The present invention relates to a solar water boiling device. More particularly, the invention relates to a device which is readily portable and which can be employed to boil water for use in making hot drinks, e.g. for tea or coffee-making, or for the purpose of sterilizing water where a supply of pure water is not available." ...

Art Unit: 3749

... "The invention provides a solar water boiling device wherein a water tight container is confined within a thermally insulated enclosure. The container is provided within an opening for introducing water into the container and for withdrawing water from it, and with a removable closure for sealing the opening. A front side of the enclosure has an aperture and a light transparent cover extending over the aperture. The thermal insulation on the edges and rear side of the enclosure is such that heat loss through the insulated edges and rear side is small as compared with the heat loss through the aperture and its cover. A front wall of the water-tight container is spaced rearwardly from the cover, and a light absorptive surface is provided, also spaced rearwardly from the cover and arranged to be heated by sunlight passing through the cover and to transfer its heat to the container. The inventor has found that with this device the rate of heating of the water is a function of the depth of the confined volume of water. More particularly, the rate of heating is approximately inversely proportional to the depth of water measured transversely with respect to the aperture in the enclosure, i.e. parallel to the incident rays when the front of the device is directed toward the sun. Further, it has been found that on exposure of the device to full sunlight, the rate of heating is such that a period of about one hour is required to raise the water to boiling point for each half-centimeter depth of water. In the device of the present invention, the rear wall of the container is, over its entire extent, spaced from the front wall by a distance no more than about 4 cm so that when the container is completely filled with water a depth of water of no more than about 4 cm is presented which can be raised to the boiling point after exposure for no more than about 8 hours i.e. a typical period of duration of full sunshine on an average summer's day. It is desirable to completely fill the container as the presence of bubbles or pockets of air within the container greatly reduces the efficiency of heat transfer to the water and may give rise to problems of excessive pressures being generated within the container owing to the relatively large volume coefficient of expansion of air." ...

... "Between the side and bottom walls of the enclosure and the flask 13 is arranged thermal insulation material 19. Across the opening defined by the front or upper edge of the side wall 12 is supported a circular light transmissive cover 21 e.g. of glass or transparent or translucent plastic. ... Thus, on exposure of the device to sunlight, light entering through the cover 21 is absorbed by the surface 26 and by the light-absorptive surface of the plate 28 and these surfaces become heated. In accordance with well-known principles, heat energy tends to be accumulated within the device, owing to the air spacing between the cover 21 and the surface 26 and the plate 28. This heat is transferred by convection and conduction to the contents of the flask 13. In use, the flask 13 is completely filled with water, so that there are no bubbles or pockets of air within the flask, and the flask is closed by applying the closure cap 18." ...

... "When the air space beneath the cover 21 and the water contained within the flask 13 are heated, heat losses do of course occur, predominantly by conduction and re-radiation through the cover 21." ...

... "Typically, in the case in which the cover 21 is of glass, the cover 21 will afford thermal insulation corresponding to an R value of about 1 or more (North American units) so that under steady state conditions in full sunshine, a temperature difference of about 110.degree. C. or more can be sustained between the environment and the inner side of the cover 21. Plastic glazing materials having an R value above 1, e.g. about 2, may be used, for example, light transmissive cellular plastic materials such as the so-called corrugated plastic sheeting having two facing sheets united by spaced longitudinal ribbing forming internal channels. Further, double glazed units may be used for the cover 21. With these, somewhat higher temperature differences may be sustained. The nature and thickness of the insulation material 19 employed is such that temperature losses through the insulation material extending along the sides and bottom wall of the flask 13 are small compared with heat losses through the

Art Unit: 3749

cover 21. Desirably, the insulation material will achieve a level of thermal insulation corresponding to an R value of about 4, and preferably much higher, e.g. about 7 or 8 (North American units). Preferably, the material 19 provides thermal insulation of the kind referred to as "superinsulation".

... "It is of course important that the flask 13, the insulation material 19, and the cover 21 should be capable of withstanding the temperatures to which they are subjected in use, without unduly softening or becoming permanently deformed. In the case of the flask 13, it is also of course important that this should be sufficiently strong at boiling water temperatures to withstand the internal pressure. Examples of suitable plastics materials which may be used for the flask 13 include polycarbonates, higher melting grades of polyethylene and polypropylene, and high melting cross-linked polyethylene and polypropylene materials. The cover 21 may be of glass, or of any of the plastics materials mentioned above. The insulation material 19 may be expanded polystyrene, glass fibre insulation material, or expanded or foamed versions of any of the above-mentioned plastic materials." ...

... "As will be appreciated, the device may include a thin light-absorptive plate, similar to the plate 28 positioned above and in contact with the front wall 27 of the flask, or this front wall may itself have a light-absorptive coating on it, or the front wall 27 may be of light transmissive material, and either the back wall 29 of the flask or the upper surface of the insulation material 19 may be provided with a black light-absorptive coating" ...

... "In use, under pressure of boiling water within the flask 13, the back wall 29 bulges downwardly into contact with the adjacent surface 50 of the insulation material 19 until the pressure exerted on the insulation material 19 is sufficient to overcome the retaining force of the fastener tapes 48 and 49, causing the enclosure to split open along the plane 47, thus exposing the flask 13 to cooling by contact with the outside air. Thus, overheating of the flask and risk of explosive rupture of the flask can be avoided." ...

... "Advantageously the front wall to rear wall spacing of the water-containing flask 13 in one device is greater than that of the flask 13 in the other, so that the relatively shallow or thin flask, in this example the flask 13 in the device 57, can more quickly be brought to the boiling point on exposure to sunlight, while a somewhat greater quantity of water present in the relatively deep or thick flask is being heated more slowly in the device 58."

Kircus teaches, from the same solar energy water heater field of endeavor as by Luboschik et al, that it is known to integrally form (see column 4, lines 54-66) insulating layers (18,22) as well as energy converting layers (12,14) in a unitary integral heat sealed fashion to form a solar energy collecting unit.



Art Unit: 3749

In regard to claims 1, 2,3, 6, 7, 9,10,12,13,17-22, 24,25,26,29-31,33,34,37-39, 43 and 47, for the purpose of generating potable sterilized/pasteurized water in an location where a supply of pure water is not available, it would have been obvious to a person having ordinary skill in the art to modify, by providing suitable foam insulation, and operate the apparatus of Luboschik for a period of time sufficient to achieve water temperatures of at least 60 degrees C, in a method of water pasteurization, in view of the teaching of Burkhardt. Also, in regard to claims 1, 28 and 43, in particular, for the purpose of providing means to visually inspect and monitor the temperature history of a water heating cycle during operation of the heater to pasteurize water, or a method of pasteurizing water, it would have been obvious to a person having ordinary skill in the art to substitute, for the cap (2a) of Luboschik, a cap including bracket mounted reusable transparent sterilization/ pasteurizer indicator (a WAPI), in view of the teaching of Ryder. And, in regard to claims 1,6,7,10,12,13,22 and 43, for the purpose of providing a suitable alternate wall structure, method of manufacture therefore, and for reducing heat loss, it would have been obvious to a person having ordinary skill in the art to form the bottom wall of the Luboschik water heater from three layers (e.g.- an inner dark, outer reflective and middle flexible foam insulating layer) wherein the re-sealable spout opening is located there through, in view of the teachings of Hall '793. In addition in regard to claims 1,6,7,10,12,13 and 43, for the purpose of providing a suitable means for manufacturing the unitary collector of Luboschik, it would have been obvious to a person having ordinary skill in the art to form the insulating layers as well as energy converting layers of polymeric material in a unitary integral heat sealed fashion, in view of the teachings of both Hall and Kircus. In regard to claim 2, in particular, Official Notice is taken that it is well known to form water temperature history indicators of the type taught by Ryder from

Art Unit: 3749

glass. And, Official Notice is also taken that glass is well known for its non-reactive characteristic when used at high temperatures and when used to contain a variety of chemical species (e.g. – glass is notoriously well known in laboratory applications, mercury thermometers, etc.). Therefore, in view of that which is well known, for the purpose of providing a non-reactive chemical resistant material, it would have been obvious to a person having ordinary skill in the art to use glass to contain a temperature indicator. In regard to claim 24, Official Notice is taken that it is well known to use pump-action action pressurized sprayer associated with fluid container caps, or closures (i.e. – hand held and operated cosmetic and cleaning fluid dispensers), for aiding in dispensing the fluid from the container. Thus, in view of that which is well known and for the known purpose therefore, it would have been obvious to a person having ordinary skill in the art to modify the cap of Luboschik to included a pump-action pressurized sprayer. And, in regard to claims 29,30,31, Official Notice is taken that in order to produce potable water, it is well known to pass water through filters and to remove undesirable and potentially harmful chemical and biological materials. Thus, in view of that which is well known, for the purpose of producing potable water, it would have been obvious to a person having ordinary skill in the art to provide Luboschik et al with one or more particulate, anti-microbial, or charcoal filters for water exiting the container. In regard to claim 31, Official Notice is taken that it is well known to associate filters with re-sealable water container openings. Thus, in view of that which is well known, it would have been obvious to a person having ordinary skill in the art to further modify the opening of Luboschik to have filters associated therewith. In regard to claim 33, Official Notice is taken that it is well known to provide water containers with pleated structures to permit expansion of the container upon filling. Thus, in view of that which is well

Art Unit: 3749

known and for its well known purpose, it would have been obvious to a person having ordinary skill in the art to modify the water container of Loboschik with pleated structures to permit expansion upon filling. Also, in regard to claims 34, Official Notice is taken that it is well known to provide solar energy collectors with additional solar energy reflector/concentrator ("cooker") means to further increase the amount of solar energy radiation directed onto and absorbed by the collector unit. Thus, in view of that which is well known, it would have been obvious to a person having ordinary skill in the art to provide Luboschik et al with additional reflective "cooker" structure.

**Claims 10,14,15 and 44: rejected under 35 U.S.C. 103(a)**

Claims 10,14,15 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luboschik et al (DE 28 51 793) in view of Ryder, Hall and Kircus, as applied to claims 1 and 43 above, and further in view of Stoumen (U.S. Patent No. - 6263870).

Luboschik et al discloses the invention substantially as set forth in the claims with possible exception to the collector/absorber member being pleated and perforated to permit the flow of water from one side to the other side.

Stouman et al teaches, from the same solar energy water heater field of endeavor as by Luboschik et al, the use of a pleated woven polymer energy collecting surface (18) in a portable flexible wall water solar heater. The porous woven polymer material permits the flow of water

Art Unit: 3749

from a first to a second side of the of the collecting surface while the pleated shape increases the surface area thereof and thereby increasing the rate of solar heat absorption.

Stoumen et al discloses:

... "In one embodiment of the invention the **black element 18** is formed from a **flexible sheet of mesh or screen material** which is **chemically inert** so that it will not taint or contaminate the water in the container. A mesh material for the element 18 may be of a suitable plastic or polymer material which can withstand, absorb and retain heat up to the temperature of boiling water. **The element 18 may be made in mesh, screen, woven or knitted form from polymer or plastic materials such as polyurethanes, silicones, olefins, nylons, polyesters or metals.**

In order to increase the heat absorbing characteristics of the insert element 18 within the container 10, the element is formed as **a sheet that is folded to form a series of pleats 20**, as shown in FIG. 2. As further shown in FIG. 3, the insert sheet 18 is also provided with a series of holes 22 which are spaced apart near its upper edge. As shown in FIGS. 5 to 7, a draw string 24 is laced through the holes 22 so that upper ends of the pleats 20 can be pulled together, thereby enabling the insert element 18 to be more easily installed within the container 10. ..."

In regard to claims 14,15 and 43, for the purpose of permitting the circulation of water through the surface of the Luboschik et al collector and to increase the amount of solar energy collected, it would have been obvious to a person having ordinary skill in the art to modify the collector to be pleated and perforated, in view of the teaching of either Stoumen.

### **Double Patenting**

Claims 1-3,6,7,9,10,12-15,17-22,24-26,28-31,33,34,37-39,43,44 and 47 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-55, of copending Application No. 09/788,336 in view of in view of Ryder (U.S. Patent No. 3939968), Burkhardt (U.S. Patent No. 4557251), Hall (U.S. Patent No. 4520793), Billingham

Art Unit: 3749

(WO 86/07627), Kircus and Stoumen for the reasons set forth in the rejection of corresponding claims recited herein above.

This is a provisional obviousness-type double patenting rejection.

**Conclusion**

See the attached **PTO FORM 892** for prior art made of record and not relied upon which is considered pertinent to applicant's disclosure.

**USPTO CONTACT INFORMATION**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is 703-308-1953. The examiner can normally be reached on Monday through Friday between 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 703-308-1935. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-872-9303 for After Final communications.

Application/Control Number: 10/039,277

Page 21

Art Unit: 3749

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-1148/0858.

A handwritten signature in black ink, appearing to read 'Carl D. Price', with a stylized flourish at the end.

CARL D. PRICE  
Primary Examiner  
Art Unit 3743

cp  
10-20-2003